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1998

Contact

Council Distributes Additional $71 Million

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This is an issue of *Contact* that you might want to keep as a souvenir. It contains some of the best news we've seen for a long time.

In the 1998 Federal Budget, NSERC received an allocation $70.8 million larger than what we had planned for. The cut already on the books for this year was cancelled, and the cuts made since 1994-95 were reversed. We were instructed in the Budget Plan that the new resources were to be spent to increase the support for research students and to enhance university-industry partnerships, and this has been done.

The details are inside, but here's an outline of the main points:

- The value and number of all individual awards for research students has been increased;
- The ceiling for payments to research assistants has gone up by ten per cent;
- To help grantees pay their graduate students better, support more of them, and provide a better environment for their advanced education in research, the Research Grants budget will be increased by 10 per cent, or about $20 million, and $7 million will be added to the Research Partnerships budget;
- The Undergraduate Student Research Awards program will be quadrupled and once again made available to all universities;

(continued on page 2)

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NSERC is the national instrument for making strategic investments in Canada's capability in science and technology. An arm's-length federal agency, it is responsible for promoting and supporting research in the natural sciences and engineering, other than the health sciences.

NSERC supports both basic university research through research grants and project research through partnerships of universities with industry, as well as the advanced training of highly qualified people in both areas.

Happy 20th Anniversary, NSERC!

NSERC celebrated its 20th anniversary on May 1, 1998. On that date in 1978, NSERC came into existence as a separate crown agency, distinct from the National Research Council.

Over the years, NSERC staff has more than tripled, jumping from 55 employees to 197. Thirteen individuals who moved over to NSERC from NRC 20 years ago are still with the Council today. In recognition of their years of loyal service to NSERC, Dr. Brzustowski presented the following old-timers (oops, staffers) with a special certificate: Carole Crête-Robidoux; Maurice D'Aoust, Leo Derikx, Madeleine Gibbard, Réjeanne Lacroix, Paul Latour, Jocelyn Lillycrop, Carole Longpré, Louise Martel, France Massé, Elaine Salmon (on secondment to the Canada Foundation for Innovation), Lise Schnupp and Marilyn Taylor (on secondment to the Office of the Auditor General of Canada). Suzanne Saumure was also recognized, since she joined NSERC shortly after its inception.

NSERC's anniversary celebration gets a 'thumbs up' from staff in the President's Office, Communications Division, Policy and International Relations Division, and Council Secretariat.

(continued on page 4)

Editorial from page 1

- To help the Reallocations Committee respond to more proposals in which the support of research students is a factor, an additional $10 million will be provided. That means that in the reallocations exercise the GSCs will contribute $20 million to the pot, and $30 million will be distributed in return. The Reallocations Committee has finished its work, and Council has accepted the results, but the report is still being prepared. It will be made public when the feedback to all the Steering Committees has been prepared. I expect that to happen by the end of June.
- $25 million will be provided to the Research Partnerships Program to meet the demand in its various programs.
- There are small additional amounts for Equipment, Major Facilities Access grants, and some international activities, as well as a small increase for administration.

Council was very happy to approve these allocations. We all realized that we were taking only a first step, but we were thrilled that this step was in the direction of meeting the real needs of Canada's university researchers in the natural sciences and engineering.

— Tom Brzustowski
President

Students, Researchers to Share Budget Increase

The 1998 Federal Budget restored NSERC's budget to the 1994-95 level for 1998-99 and additional increases were announced for 1999-2000 and 2000-01. The table below highlights these increases:

In the budget speech, the Finance Minister stipulated that these new research and development resources focus on two key areas:

- increased support to graduate students engaged in research, through scholarships, postdoctoral fellowships and project grants; and
- enhanced partnerships between universities and industry.

Fiscal Year	Previous Budget ($M)	New Budget ($M)	Increase ($M)
1998-99	422.9	493.7	70.8
1999-00	417.1	495.1	78.0
2000-01	416.2	501.2	85.0

Following consultation with its standing committees, Council approved the following measures at its June 4 meeting. The implementation details will appear as news items on the NSERC Web site during the coming weeks.

Research Grants

By 2002-03, the budget for Research Grants will be $30.4 million more than last year.

a) $20.4 million will be injected immediately through a 10 per cent increase to all Research Grants.[1] NSERC is asking grantholders to use the new funds to raise stipends, train more students and fellows, and create a better environment for research training (for example, by improving student access to conferences or field trips). Effective April 1, 1998, the maximum postgraduate student stipend payable from an NSERC grant increased from $15,000 to $16,500; the minimum payment to a postdoctoral fellow rose to $25,000, and the maximum payment to the fellows was eliminated. Professors should review the amounts they are paying and determine, in negotiation with their graduate students and postdoctoral fellows, when and by how much stipends will be increased. NSERC will ask grantholders to describe how their new funding has contributed to training when they apply for their next grant.

b) The remainder of the increase will address new priorities in Research Grants as recommended by the Reallocations Committee. This will bring the total reallocation pool to $30 million. The results of this major exercise will be announced by NSERC within the next two weeks.

- Up to $4 million annually will be added to the Major Facilities Access program to help researchers make use of new research facilities, including those funded by Canada Foundation for Innovation grants.
- Up to $1.5 million annually will be used for international activities.
- Up to $2 million will be added to the 1998 Equipment Grants competition budget to support equipment requests judged meritorious but not funded immediately following the competition due to insufficient funds.

Scholarships and Fellowships

Stipend levels and number of awards for all core scholarship and fellowship programs have been increased effective April 1, 1998.

The university component of the Undergraduate Student Research Awards program will be expanded. Larger universities will be eligible again, with 2,000 new awards being offered in 1999.

A new award, similar to two former awards, University Research Fellowships and Women's Faculty Awards, will be created. It will target women initially, but may be broadened to include First Nations and other designated groups.

[1] The Subatomic Physics Grant Selection Committee will be consulted regarding increments to SAP Project Grants.

Fifteen awards per year for support up to five years will be offered, beginning in 1999.

Award*	Old Value ($)	New Value ($)	Approximate Number of Additional Awards per Year
PGS A	15,700	17,300	160
PGS B	17,400	19,100	100
IPS	12,500**	13,800**	30
PDF	30,000	35,000	40

* Acronyms: PGS, Postgraduate Scholarship; IPS, Industrial Postgraduate Scholarship; PDF, Postdoctoral Fellowship.

** NSERC contribution, supplemented by at least $5,000 from the partner company.

Research Partnerships

By 2000-01, the budget for Research Partnerships will have risen by $32 million a year:

a) Almost a quarter of the new funding will be used to raise stipends and improve the environment for research training. The principles for helping graduate students and fellows are the same as those outlined in the section on Research Grants above.

b) The balance will go to meet the program demand for university-industry projects and research networks. The Intellectual Property Management Program (IPM) and NSERC's Technology Partnerships Program (TPP) will be reinstated. The moratorium on applications to the New Faculty Support Program will be lifted.

20th Anniversary from page 2

Some readers may be familiar with a number of our staff – those who participate in activities such as committee meetings, site visits, and university visits, for instance. However, there are many more who work just as hard behind the scenes. We thought we'd take the occasion of our 20th anniversary to show you the individuals that together make NSERC what it is today. Throughout this edition, you'll find photos of the staff of various divisions and directorates. Check back 20 years from now to see how many of the same faces are still at NSERC!

The President's "Report to the Nation"

In the first half of the President's cross-Canada "Report to the Nation," Dr. Brzustowski spoke to over 500 business leaders, academics, and interested members of the general public in six Canadian cities (Montreal, Calgary, Edmonton, Toronto, London, and Vancouver). His speeches, entitled "Research, Young People, and the Canadian Economy," describing the benefits and local impacts of university-based research, were well received by the audiences.

National and local media also covered many of the events. For instance, Dr. Brzustowski's address to the Canadian Club of Toronto was broadcast live by Rogers Cable. A video of the speech can be purchased for $28.75 by contacting Ms. Lisa Warner at Rogers Community TV (telephone: (416) 446-7175; email: lwarner@rci.rogers.com). The text is also available on our Web site: www.nserc.ca/20/tour.htm.

The tour will continue this fall with dates in Quebec City, St. John's (Nfld.), Winnipeg, and Saskatoon. The latest information on upcoming events can be found on the Web page mentioned above.

If you wish to invite Dr. Brzustowski or a member of NSERC's Council to speak on S&T issues at a special event, or if you are thinking of organizing such an event, please contact Robert Roy by telephone: (613) 992-9001, fax: (613) 943-0742, or e-mail: rjr@nserc.ca.

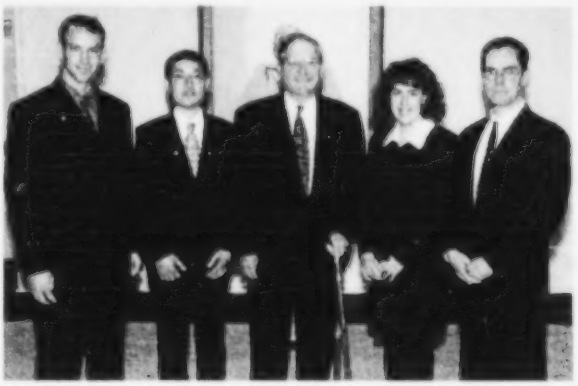
E for Excellence

Dr. Keith Ingold, whose work on vitamin E is a landmark in medical biochemistry, has won NSERC's Canada Gold Medal for 1998.

Dr. Keith U. Ingold (left) receives the Canada Gold Medal for Science and Engineering from Chief Justice of the Supreme Court Antonio Lamer, on behalf of His Excellency The Right Honourable Roméo LeBlanc, Governor General of Canada.

Dr. Ingold, along with the 1998 winners of the E.W.R. Steacie Memorial Fellowships and NSERC Doctoral Prizes, was recognized April 30 at a special ceremony at Rideau Hall. Chief Justice of the Supreme Court Antonio Lamer presided at the prize-giving and nine members of parliament were in attendance.

In sending his congratulations to those honored, Prime Minister Jean Chrétien noted that the prize-winners' pursuit of excellence "has helped lay the foundation for a strong and prosperous Canada as we approach the twenty-first century." He also affirmed his government's commitment to a strong and broad-based research and development sector.



Doctoral Prize winners: (left to right) Dr. Shawn Marshall (Earth and Ocean Sciences, University of British Columbia), Dr. Yingfu Li (Chemistry, Simon Fraser University), Chief Justice Antonio Lamer, Dr. Janet Elliott (Mechanical Engineering, University of Toronto), and Dr. Neil Duncan (Mechanical Engineering, McGill University).

E.W.R. Steacie Fellows: (top row, left to right) Dr. Michael Ward (Mathematics, University of British Columbia), Dr. Jonathan Schaeffer (Computer Science, University of Alberta), Dr. Tom Brzustowski (President of NSERC), and Dr. Sara Iverson (Biology, Dalhousie University); (bottom row, left to right) Dr. Suzanne Fortier (Vice-President of NSERC) and Dr. Louis Taillefer (Physics, McGill University).

Industry Minister John Manley and Secretary of State (Science, Research and Development) Ron Duhamel joined the prize-winners at a dinner after the ceremony.

The research carried out by Dr. Ingold at the National Research Council, where he has been employed for more than forty years, has shown how natural vitamins protect cells from free radicals, and thus prevent strokes and heart attacks, as well as diseases like asthma and cancer.

Dr. Ingold has so far trained more than 70 postdoctoral fellows and research associates at his lab at the NRC, and earned an international reputation as one of the world's leading chemists.

For the text of Dr. Ingold's speech to the dinner guests and additional information on all the winners, visit the "High Honours" section of our 20th anniversary Web page: www.nserc.ca/20/years.htm.

NSERC Reallocates $25 million to New Directions for Basic Research

On June 25, Dr. Tom Brzustowski announced that NSERC will reallocate $25 million to invest in 38 major initiatives proposed by Canadian university researchers.

The decision follows an extensive review in which the Council asked each discipline it funds to return 10 per cent of its annual budget to NSERC, and then asked researchers to identify their priorities and present their cases for new initiatives that would be important to Canada. The results recognized the growing importance and impact of molecular biology and information technologies in modern research, and the need for support of mathematical and statistical sciences on which much other science and engineering depend. Among the specific initiatives to be funded are:

- research on new imaging techniques for studying the brain,
- increased access for Canadian researchers to research telescopes and satellites,
- expanded support for biodiversity research on Canadian plants and animals,
- the development of powerful new molecular techniques for use in the life and physical sciences,
- research on advanced technologies to improve the profitability and reduce the environmental impact of new industrial processes.

In all, NSERC received 19 vision statements from the science and engineering disciplines it supports, along with 71 proposals for new initiatives. The statements and proposals were evaluated on the basis of their importance to Canada by a blue-ribbon committee of leading scientists and engineers. They were aided by independent referees, most from outside Canada. The Reallocations Committee was asked to advise Council on the best use for $20 million contributed by the disciplines, as well as for $10 million of new funds from the recent increase to NSERC's budget. The committee recommended that $25 million of the total amount be used to fund the top proposals and that the remaining $5 million be distributed proportionately to all disciplines, in recognition of the importance and high quality of their research activities.

NSERC also invited the Reallocations Committee to advise it on how to improve the reallocation process. The committee recommended that the reallocations exercise become a formal process, taking place on a regular basis, and that NSERC take action to stimulate research at the interface between disciplines. Both recommendations were accepted by Council.

Extensive documentation on the reallocations exercise, including all submissions, proposal details, and the full text of the Council's report, are available on the NSERC Web site at www.nserc.ca/programs/allo1.htm.

Steering Committee*
Animal Biology and Physiology
Cell Biology and Molecular and Dev. Genetics
Plant Biology and Food Science
Evolution and Ecology
Psychology
Solid and Environmental Earth Sciences
Chemistry
Space and Astronomy
Canadian Institute for Theoretical Astrophysics
Subatomic Physics
Condensed Matter Physics
General Physics
Pure and Applied Mathematics
Mathematics Institutes
Statistical Sciences
Electrical and Computer Engineering
Industrial Engineering
Chemical and Metallurgical Engineering
Civil Engineering
Mechanical Engineering
Computing and Information Sciences
Total

Results of the Reallocations Exercise

Budget 98-99 (Before Federal Budget Increase)	Budget 98-99 (Including 10% Federal Budget Increase)	Reallocations Contribution	Proposals Funded Through Reallocations 1	2	3	4	5	6	General Increase**	Total Reallocated***	New Budget****
12,393,000	13,632,300	(1,239,300)		908,147					309,825	1,217,972	13,610,972
15,496,000	17,045,600	(1,549,600)	1,560,000	1,304,092					387,400	3,251,492	18,747,492
9,664,000	10,630,400	(966,400)	670,825				500,000		241,600	1,412,425	11,076,425
12,174,000	13,391,400	(1,217,400)	700,000	343,575		731,471			304,350	2,079,396	14,253,396
9,026,000	9,928,600	(902,600)	1,042,455	450,000					225,650	1,718,105	10,744,105
16,752,000	18,427,200	(1,675,200)	961,675						418,800	1,380,475	18,132,475
23,098,000	25,407,800	(2,309,800)	3,054,326						577,450	3,631,776	26,729,776
5,212,000	5,733,200	(521,200)		579,573					130,300	709,873	5,921,873
585,000	643,500	(58,500)			187,314				14,625	201,939	786,939
11,764,000	12,940,400	(1,176,400)	1,200,000	225,352					294,100	1,719,452	13,483,452
6,189,000	6,807,900	(618,900)	490,754	328,235	81,260				154,725	1,054,974	7,243,974
3,650,000	4,015,000	(365,000)	442,392						91,250	533,642	4,183,642
7,269,000	7,995,900	(726,900)	538,949		323,046				181,725	1,043,720	8,312,720
1,600,000	1,760,000	(160,000)				513,079 *****			40,000	553,079	2,153,079
3,395,000	3,734,500	(339,500)	140,486	140,486	140,486	140,486			84,875	646,819	4,041,819
13,572,000	14,929,200	(1,357,200)	1,000,000		1,642,814				339,300	2,982,114	16,554,114
4,609,000	5,069,900	(460,900)	156,476	97,500					115,225	369,201	4,978,201
12,552,000	13,807,200	(1,255,200)	1,140,603		606,500				313,800	2,060,903	14,612,903
11,349,000	12,483,900	(1,134,900)		125,060					283,725	408,785	11,757,785
11,401,000	12,541,100	(1,140,100)	525,611						285,025	810,636	12,211,636
12,910,000	14,201,000	(1,291,000)	1,038,000	778,500	548,231				322,750	2,687,481	15,597,481
204,660,000	**225,126,000**	**(20,466,000)**							**5,116,500**	**30,474,259**	**235,134,259**

* Thirteen Steering Committees correspond to the current NSERC Grant Selection Committees (GSCs), and six to the combined communities of two GSCs.

** General Funding Increase not allocated to proposals, as recommended by the Reallocations Committee.

*** Total Reallocated = Reallocation by Proposal Number + General Increase.

**** New Budget = Budget including the Federal Budget Increase - Reallocations Contribution + Total Reallocated. The New Budget will be reached by the 2002-2003 fiscal year.

***** Mathematics Institutes are combined.

NSERC Sponsors Breakfast Series on Parliament Hill

The bacon and eggs were hot. So was the forecast delivered by University of Victoria climatologist and NSERC 1997 Steacie Fellow Dr. Andrew Weaver at the launch of a new breakfast series designed to bring research advances to the attention of federal politicians.

Dr. Weaver, one of the world's leading experts on climate dynamics, had been invited to inaugurate the breakfasts by the series' two primary sponsors, NSERC and the Partnership Group for Science and Engineering (PAGSE).

Dr. Weaver's message to the 80 MPs, senators, and members of the media assembled in the Parliamentary Restaurant was that scientists are gaining confidence that they are seeing real evidence of global warming.

"Canadians should take note," he said, "because all the current major climate models predict that some of the greatest changes will occur in the northern regions of the Northern Hemisphere, where there will be more precipitation and much warmer winter temperatures."

"While the pattern of unusual weather in recent years doesn't add up to proof in any scientific sense," he said, "it is certainly consistent with what the models are telling us."

In a blunt message to decision-makers, he said that the measures agreed to at the Kyoto conference will not be sufficient to prevent the doubling of the level of carbon dioxide in the atmosphere. He argued the need for better models and more research into past climates to try to predict the results of this doubling. "Such a major change in carbon dioxide levels may upset the remarkably stable global temperature that has existed since the emergence of human civilization, and indeed for the entire 10,000 years of the present interglacial." Using graphs, he highlighted just how different this present period has been from the last glacial period, when the changes in global temperature were frequent, rapid and huge.

The Speakers of the House of Commons and the Senate are providing the use of the Centre Block facilities for the new series, which goes under the catchy title "Bacon and Eggheads." The initiative is also being strongly supported by Lanark, Ontario MP Ian Murray, and the Secretary of State (Science Research and Development), Dr. Ron Duhamel. The objective is to provide Members of Parliament and the Senate with a non-technical, illustrated look into the exciting new discoveries being made in industrial, university, hospital and government laboratories. The emphasis is on the use and benefits of the research to all Canadians, for improved health and safety and for generating economic growth.

NSERC's primary partner in the initiative, The Partnership Group for Science and Engineering, is a cooperative association of more than 20 national organizations in science and engineering. It was formed in June 1995, at the invitation of the Academy of Science of the Royal Society of Canada, to foster common interests and address issues concerning research and applications of science in Canada. Member organizations of PAGSE provide core support for its meetings and activities. These include defining the economic benefits of research in Canada and the effects of shrinking research budgets, analyzing intellectual property issues and other potential impediments to improving academia-industry-government symbiosis, examining the international dimension of research projects and associations, and informing the public about science and engineering and their importance to Canada.

Employees in the joint NSERC/SSHRC Corporate Administrative Services Directorate, which comprises the following divisions: Administration; Finance; Human Resources; and Information Systems.

Application Forms Getting a Facelift

In order to offer our students and researchers an easier and faster means of completing their application forms, NSERC is currently working with its two sister granting councils (the Medical Research Council and the Social Sciences and Humanities Research Council) on the creation of Web versions of our forms.

To use a Web-based application form, applicants will need Netscape Navigator 3.0 or higher, or Internet Explorer 3.0 or higher, and Adobe Acrobat reader. All of the required software can be downloaded free from the Web.

We will be offering a web version of our *Application for an NSERC Scholarship or Fellowship* (Form 200) for the fall 1998 competition. The paper version will still be available as well.

Researchers completing an *Application for a Grant* (Form 101) and a *Personal Data Form* (Form 100) this fall for the spring 1999 competition must use the **1997** paper or JetForm versions of the forms. We will not be revising those versions of the forms this year.

Please stay tuned! The new and improved versions of our forms will be announced on the Web as soon as they are released.

Fall Competition for NATO Science Fellowships

NSERC will be accepting nominations this fall for NATO Science Fellowships. They must be submitted by October 1, by Canadian universities eligible to administer NSERC grants. Successful applicants will be notified by January 1999.

The NATO Science Fellowships program, which NSERC administers, provides opportunities for recent doctoral graduates from the NATO Partnership countries in central and eastern Europe to pursue their work or to continue their training at a Canadian university under the supervision of an NSERC grantee. Approximately 10 fellowships are available for immediate take-up following the announcement of the competition results.

Nomination documentation will be sent to universities during the summer.

For further information on the NATO Science Fellowships program, visit our Web site at www.nserc.ca (the information will be posted in the *Addendum* to the 1997 *NSERC Researcher's Guide* in late July), or contact Guy Levesque by telephone: (613) 996-1597 or e-mail: gxl@nserc.ca.

1998 Research Grants Competition Results

A total of $49.8 million was awarded in the 1998 Research Grants competition. In addition, NSERC has commitments totalling $141.7 million for grants awarded in previous competitions. This does not include a small number of requests for which a decision is still pending.

Grants Selection Committees (GSCs) reviewed 3,966 applications for Research and Equipment Grants in February 1998: 79.6% of the applications for Research Grants were funded; 31.8% of the applications for Equipment Grants (including Major Equipment and Major Installations) were supported.

The accompanying tables show the 1998 competition results for Research Grants for new and renewal applicants and Equipment Grants. **They do not reflect subsequent decisions regarding investment of the additional funds received in the federal budget.**

Table 1. New applicants – Research Grants & Equipment

Table 1 indicates the number of new applicants reviewed, the percentage who were successful and the average grant for each GSC. To ensure an appropriate renewal of the research capacity in Canadian universities, GSCs have to meet 2 of the 3 following guidelines in each competition:

- At least 50% of new applicants must be supported;
- The average grant to new grantees must be at least 70% of the overall average grant in the GSC;
- A minimum of 8% of the amount spent during the competition must be allocated to new grantees.

Table 1 also shows the number of equipment requests, the percentage that were successful and the amount awarded for each GSC. The success of new applicants in the equipment competition has been quite stable for the last three years.

New applicants should be provided with the resources to demonstrate within a reasonable period of time that they can make significant advances in the field. NSERC is concerned if a research grant is provided without the associated equipment request; GSCs are therefore asked to evaluate requests for equipment from new applicants with particular care and sensitivity.

Table 2. Renewal Applicants – Research Grants

Table 2 shows the competition results for applicants who were successful the last time they applied for a Research Grant. The large proportion who were successful again in 1998 indicates that most of these researchers were found by GSCs to have made good progress and to deserve continued support for their program.

Table 3. Results of the 1998 Equipment Grants Competition (including Major Equipment and Major Installations)

Table 3 summarizes the number of equipment grant requests, the percentage that were successful and the amount awarded in each GSC. A total of $24.5 million was awarded in Equipment Grants.

Depending on the number of Major Equipment and Major Installation applications in each discipline, applications are reviewed by the relevant GSCs, a selection committee for the discipline group (e.g. Selection Committee in Life Sciences), or the Selection Committee on Research Grants. For the latter two groups, input from appropriate GSCs is sought.

Table 1: New Applicants
Research Grants & Equipment 1998

Grants Selection Committee	Research Grants			Equipment		
	No. of New Applicants	% Success	Avg. Grant of News ($)	No. of Requests	% Success	Amount Awarded
Animal Biology	17	41.2	24,286	7	57.1	193,811
Animal Physiology	17	35.3	25,833	4	75.0	68,015
Cell Biology	19	57.9	28,091	6	50.0	54,846
Molecular & Developmental Genetics	15	60.0	28,889	5	80.0	128,850
Plant Biology & Food Science	19	42.1	28,153	7	71.4	139,212
Evolution & Ecology	19	52.6	19,150	5	40.0	34,260
Psychology	20	60.0	16,500	8	62.5	104,204
Life Sciences	126	50.0	23,948	42	61.9	723,198
Inorganic-Organic Chemistry	23	43.5	33,000	20	45.0	686,482
Analytical-Physical Chemistry	15	73.3	27,500	14	50.0	756,981
General Physics	4	75.0	23,333	2	50.0	132,748
Condensed Matter Physics	4	100.0	18,875	2	100.0	232,413
Space and Astronomy	6	83.3	19,400	1	0.0	0
Solid Earth Sciences	8	62.5	26,200	5	60.0	67,727
Environmental Earth Sciences	22	50.0	18,427	10	50.0	165,590
Physical Sciences	82	59.8	24,667	54	50.0	2,041,941
Pure & Applied Mathematics-A	8	75.0	13,667	—	—	
Pure & Applied Mathematics-B	6	100.0	9,000	—	—	
Statistical Sciences	12	100.0	11,250	3	0.0	0
Mathematical Sciences	26	92.3	11,292	3	0.0	0
Chemical and Metallurgical Engineering	21	100.0	21,952	14	92.9	811,661
Civil Engineering	35	68.6	17,842	12	16.7	77,310
Communications, Computers and Components Engineering	25	96.0	15,461	5	0.0	0
Electromagnetics and Electrical Systems Engineering	13	69.2	18,778	4	0.0	0
Mechanical Engineering	36	83.3	15,427	8	50.0	174,538
Industrial Engineering	7	100.0	13,000	—	—	—
Engineering	137	83.9	17,244	43	44.2	1,063,509
Computing and Information Science	44	81.8	15,806	12	16.7	67,585
Interdisciplinary	10	60.0	16,833	1	100.0	16,200
Total 1998	**425**	**68.9**	**19,254**	**155**	**48.4**	**3,912,433**
Total 1997	**362**	**70.7**	**20,087**	**153**	**49.0**	**3,811,806**
Total 1996	**373**	**69.7**	**20,254**	**176**	**45.0**	**3,651,743**

Table 2: Renewal Applicants 1998

Grants Selection Committee	No. of Renewal Applicants	% Success	Average Grant
Animal Biology	64	82.8	26,840
Animal Physiology	55	69.1	34,289
Cell Biology	72	75.0	34,586
Molecular & Developmental Genetics	41	95.1	34,385
Plant Biology & Food Science	89	82.0	33,969
Evolution & Ecology	114	88.6	27,782
Psychology	86	88.4	26,822
Life Sciences	521	83.3	30,549
Inorganic-Organic Chemistry	80	93.8	47,068
Analytical-Physical Chemistry	85	89.4	41,006
General Physics	28	85.7	32,375
Condensed Matter Physics	48	91.7	28,982
Space and Astronomy	37	94.6	36,257
Solid Earth Sciences	57	91.2	34,202
Environmental Earth Sciences	85	88.2	25,560
Physical Sciences	420	90.7	35,862
Pure & Applied Mathematics-A	61	91.8	16,402
Pure & Applied Mathematics-B	52	92.3	14,188
Statistical Sciences	56	98.2	15,936
Mathematical Sciences	169	94.1	15,572
Chemical and Metallurgical Engineering	99	94.9	28,336
Civil Engineering	103	87.4	23,576
Communications, Computers & Components Engineering	48	93.8	22,713
Electromagnetics and Electrical Systems Engineering	55	92.7	25,067
Mechanical Engineering	102	99.0	22,013
Industrial Engineering	47	95.7	19,722
Engineering	454	93.8	23,936
Computing and Information Science	108	97.2	26,267
Interdisciplinary	17	70.6	28,000
Grand Total	1,689	89.8	28,140

Tips...

For tips on how to prepare a winning research grant proposal, see our Web version of this issue of Contact.

Table 3: Results of the 1998 Equipment Grants Competition

Regular Equipment

Grants Selection Committee		No. of Requests	% Success	Amount Awarded
Animal Biology		38	31.6	417,552
Animal Physiology		46	32.6	393,870
Cell Biology		65	36.9	600,719
Molecular & Developmental Genetics		40	27.5	398,721
Plant Biology & Food Science		109	33.9	1,038,839
Evolution & Ecology		88	35.2	669,243
Psychology		65	41.5	492,663
Inorganic-Organic & Analytical-Physical Chemistry		235	27.6	3,768,657
General Physics		30	26.7	440,428
Condensed Matter Physics		58	29.3	953,620
Space and Astronomy		22	40.9	293,498
Solid & Environmental Earth Sciences		120	33.0	1,470,419
Pure & Applied Mathematics — A & B		17	64.7	212,000
Statistical Sciences		16	50.0	255,628
Chemical & Metallurgical Engineering		112	26.8	1,684,048
Civil Engineering		90	24.4	1,011,433
Communications, Computers, Components Engineering		28	25.0	330,861
Electromagnetics and Electrical Systems Engineering		40	40.0	448,848
Mechanical Engineering		74	35.1	928,063
Industrial Engineering		17	29.4	179,659
Computing and Information Science		77	28.6	1,035,286
Interdisciplinary		12	41.7	122,967
Total	**1998**	**1,399**	**31.6**	**17,147,022**
	1997	**1,346**	**34.9**	**18,221,181**
	1996	**1,391**	**35.0**	**17,365,999**

Major Equipment and Major Installations

Grants Selection Committee		No. of Requests	% Success	Amount Awarded
Inorganic-Organic & Analytical-Physical Chemistry		19	36.1	1,499,223
Solid & Environmental Earth Sciences		7	28.6	321,528
SCILS[1]		11	27.3	439,422
SCORG[2]		48	27.1	5,092,557
Total	**1998**	**85**	**28.2**	**7,352,730**
	1997	**80**	**31.3**	**6,942,856**
	1996	**85**	**27.0**	**7,878,219**

[1] SCILS (Selection Committee in Life Sciences)
[2] SCORG (Selection Committee on Research Grants)

An Additional $4 Million for the MFA Program!

The budget for the Major Facilities Access (MFA) grants program will have more than doubled by year 2001-02. Council has approved an addition of $4 million to the budget in recognition of the increasing pressure on this program to provide operating support for new facilities funded by the Canada Foundation for Innovation, provincial programs and other sources.

The budget for the upcoming 1999 competition has been tentatively set at $5.4 million, up $2 million from what was previously budgeted. This amount may be revised in November 1998 in light of the demand on the program. The additional $2 million will be used for support of important new facilities, which may arise in non-competition years. Further details on the mechanism for this will be released later.

If you intend to apply for an MFA grant this fall, please note the following:

- The MFA application deadline is October 1, 1998. However, you must submit Form 181, *Notification of Intent to Apply for a Major Facilities Access Grant,* to NSERC **by August 15** (except researchers in subatomic physics); you can obtain it from your university's Research Grants Office. The information you provide on Form 181 will help NSERC to determine the most appropriate review mechanism for the application; **it will not be used for screening purposes.**
- The existing six selection criteria have been clarified. You can find the criteria and other information on the program at www.nserc.ca/programs/mfa.htm.

If you have any questions about the MFA program, please direct them to resgrant@nserc.ca.

University Visits Scheduled for 1998

A team of five to eight members of Grant Selection Committees (GSCs) and an NSERC Research Grants staff member will be visiting universities in September. The purpose of the visits is to enhance communications between researchers, GSCs and NSERC (see schedule opposite).

The morning information sessions will start with a workshop on "How to prepare an NSERC application." The emphasis will be on the peer review process and on the

Staff in the Research Grants Division of the Research Grants and Scholarships Directorate.

content and presentation of applications, in accordance with the GSCs' expectations. The session will be useful to new applicants as well as to more seasoned researchers.

A general information session covering new and important events at NSERC, and a question and answer period, will follow the workshop.

In the afternoon, the members from each GSC will visit the appropriate departments and meet with department heads, faculty members and students. They may also tour facilities.

Details will be posted at your university in August and September. Contact Carole Crête-Robidoux by telephone at (613) 996-2985, or e-mail at coord@nserc.ca. for further information.

1998 University Visits Schedule

University (Campus)	Physical Sciences	Comp. & Info. Sc., Math. & Stats.	Engineering	Life Sciences
Committee #	08/09,24/26,28/29	07,14,336/337	04,06,13,20,334/335	03,12,18,30/31,32/33
Alberta		Sept. 16		
Brandon				Sept. 16
British Columbia			Sept. 14	
Brock	Sept. 14			
Calgary		Sept. 15		
Cape Breton	Sept. 16			
Carleton			Sept. 14	Sept. 14
Concordia		Sept. 16		
CRIM		Sept. 18		
Dalhousie				Sept. 15
EP		Sept. 14		
ETS	Sept. 17			
Guelph	Sept. 15			
HEC			Sept. 17	
INRS/Géo/Eau	Sept. 14			
INRS/Santé				Sept. 17
Lakehead	Sept. 16			
Laurentian	Sept. 17			
Laval	Sept. 15			
Lethbridge		Sept. 14		
Manitoba				Sept. 14
McGill		Sept. 15		
McMaster			Sept. 16	
Memorial				Sept. 14
Moncton				Sept. 16
Montréal			Sept. 15	
Mount Allison	Sept. 15			
New Brunswick(Fredericton)	Sept. 14			
Ottawa				Sept. 15
Québec à Chicoutimi	Sept. 16			
Québec à Montréal			Sept. 16	
Québec à Trois-Rivières	Sept. 17			
Queen's			Sept. 15	
Regina	Sept. 15			
Saint Mary's				Sept. 16
Saskatchewan	Sept. 14			
Sherbrooke		Sept. 14		
Simon Fraser			Sept. 16	
St. Francis Xavier		Sept. 11		
Toronto (Downtown)				Sept. 16
Toronto (Scarborough)				Sept. 17
Toronto (Erindale College)				Sept. 18
Trent				Sept. 14
Victoria			Sept. 15	
Waterloo	Sept. 16			
Western Ontario		Sept. 14		
Wilfrid Laurier	Sept. 17			
Windsor		Sept. 15		
Winnipeg				Sept. 15
York				Sept. 15

Research Profile

Canadian Researchers Opening Seas of Opportunity

You could say Dr. Larry Mayer is a man who parts seas for a living.

Dr. Mayer holds the NSERC Industrial Research Chair in Ocean Mapping in the Department of Geodesy and Geomatics Engineering at the University of New Brunswick (UNB). He leads a team of 12 researchers who have developed a suite of revolutionary software tools that are making all sorts of things possible.

"In the past, people used to piece together spot measurements to map the ocean bottom," explains Dr. Mayer. "It was mostly imagination . . . you'd sort of connect the dots. Now we can see what the ocean floor actually looks like. In essence, it lets us drain the water away."

The imaging tools developed by UNB's Ocean Mapping Group, in collaboration with Dr. Colin Ware of the Faculty of Computer Science, will allow investigators to get a better look at the fate of offshore dumpsites and study the ecological and environmental effects of our waste dumping.

Researchers will be better able to study fisheries habitats, map soil conditions and examine the behaviour of schools of fish, all from a remote survey vessel. They'll also have the ability to scout ocean floors to look for optimum fish farming locations.

The imaging software can even make it possible to search for underwater mineral placer deposits that could indicate potential sites for gold or diamond mining.

And it doesn't stop there. When you can interactively explore the sea floor in 3-D, it becomes a lot easier and cheaper to lay down telecommunications cables and pipelines. Mayer's team and a spin-off company created as a result of his research recently provided the imaging tools that helped developers install pipelines for the Sable Island drilling project.

In 1992, Dr. Mayer and his colleagues used their high-tech software to do a visualization of Loch Ness. They explored the murky waters interactively and in great detail but their imaging revealed no monster.

And while they haven't found any prehistoric seamonsters, the team has imaged a number of ancient wrecks including the British Freedom, a Second World War vessel that sank off the coast of Halifax. So these tools could help searchers locate missing ships and aircraft.

The UNB team's tools are also actively used for hydrographic surveys, collecting data essential for navigation safety, by locating obstacles on the ocean floor that could lead to marine disasters. In fact, navigation safety is the whole reason the software was developed in the first place.

In the late 1980s, the Canadian Hydrographic Service, the arm of the Department of Fisheries and Oceans responsible for navigation safety, became one of the first hydrographic agencies in the world to obtain a state-of-the-art multibeam sonar system for mapping oceans. But they were soon overwhelmed by the data they were getting from the advanced new system. So they went to the University of New Brunswick for help.

In 1988, through a strategic grant from NSERC and support from the Canadian Hydrographic Service, a team of UNB researchers including Dr.Ware and Dr. David Wells (a colleague of Dr. Mayer's in the Department of Geodesy and Geomatics Engineering) began designing the software tools that would help manage and process the mountains of data in real time, as it is being collected.

In 1991, an Industrial Research Chair in Ocean Mapping was created and Dr. Mayer was named to the job. NSERC has paid Dr. Mayer's salary and provided approximately $700,000 over a five-year period by matching the equivalent contributions from the chair's sponsors.

"NSERC had the critical role of seed funding for us," says Dr. Mayer. "For every dollar I collected from a sponsor, NSERC matched it. That gave us a lot of flexibility . . . it allowed us to build an infrastructure that we wouldn't have been able to otherwise."

The UNB team has worked tirelessly over the years, improving and expanding the capacity of their software imaging tools, many of which are commercialized and in big demand.

Canada stands alone in this kind of ocean mapping technology and organizations from every stretch of the globe are buying it up.

Universal Systems Limited is among a handful of smaller Maritime companies that have benefitted from the UNB software. When Universal Systems got involved with the research chair in the early 1990s, the company had about 25 employees. Since then, its staff has grown to 70 and last year alone it brought in record revenues of between $5 million and $6 million – success they say is partly due to their affiliation with the UNB team.

The Industrial Research Chair began with the support of four business and government sponsors. But in just six years, its sponsors have grown to 14, including such companies as: Jacques Whitford Nortech, Seabeam, Simrad-Mesotech and Nautronix Ltd.

Mobil Oil, the U.S. Geological Survey and Teleglobe Canada are just a few of the clients who have used their software. The chair's success has also led to the creation of Interactive Visualization Systems, a spin-off company now commercializing the interactive 3-D imaging software.

If you would like to find out more about NSERC's University-Industry programs, please contact the University-Industry Projects staff. They can be reached by phone at (613) 996-1898 or e-mail at z-rpp@nserc.ca.

The Canadian Forest Service Supports Forestry Students: A Student Perspective

Automating the process of monitoring indicators to measure the health of Canada's forests is the research focus of NSERC scholarship recipient Nigel Daley working at the Pacific Forestry Centre in Victoria.

"For a country the size of Canada, computing these indicators on a national level every five years using a manual system isn't feasible," explains Mr. Daley, who is in the first year of a Computer Science Master's program at the University of Victoria. "What we are doing is applying artificial intelligence (AI) to remote sensing data from aircraft and satellites, so we can compute indicators in an automated way."

For his thesis, Mr. Daley will concentrate on developing intelligent systems to monitor three or four of the 83 indicators of sustainability identified by the Canadian Council of Forest Ministers.

"I'm currently working on a fragmentation indicator — looking at the level of fragmentation and connectedness of forest ecosystems," says Mr. Daley. Fragmentation — the breaking up of ecosystems into smaller parcels — usually results from logging or forest fires, which create clearings visible from aircraft and satellites.

"The amount of fragmentation within a forest ecosystem is a tricky measure to define and calculate since it can mean so many different things — changes in the forest canopy, disruptions of animal habitat, and so on," says Mr. Daley, adding that it is not yet clear how fragmentation affects the sustainable growth of forests and ecosystems. "More fragmentation benefits some species over others."

Mr. Daley uses high spatial resolution imagery — imagery in which each picture element, or pixel, represents approximately 10 square metres or less on the ground — to look at forest canopy fragmentation. One of the issues he is concerned with is determining the relationship between canopy fragmentation and fragmentation of other ecosystem components, including animal habitat. "Forest canopy fragmentation can be measured from remote sensing since it is visible from above," he says. "This data will then have to be combined with habitat and other data to give an integrated overall measure of what is going on."

"One of the best tools is AI reasoning. It allows you to incorporate rules into your systems and methods," says Mr. Daley. "Given a problem, a rule-based or expert system can apply previously gained knowledge."

Mr. Daley receives financial support through the Canadian Forest Service (CFS) Graduate Supplements Program, which promotes graduate research in forestry in Canada by providing $5,000 supplements to students with NSERC postgraduate scholarships who are studying forestry or in a forestry-related field.

He has also been given the opportunity to work at the CFS Pacific Forestry Centre with chief research scientist Dr. David Goodenough, who is Mr. Daley's supervisor.

"Working at the CFS gives me a unique opportunity to work with scientists in the field. It also gives me access to excellent computing facilities and data sets," adds Mr. Daley, who says the assistance he receives from NSERC and the CFS has enabled him to continue his studies. "The scholarship made graduate work possible for me and the supplement has given me more freedom to publish papers, attend conferences, and make connections while working on my thesis."

Editor's Note: This article was submitted by Ian Graham, a co-op student hired by the CFS.

1998 Scholarships and Fellowships Competition Results

The scholarship and fellowship selection committees met in Ottawa during the week of February 15 to review applications for scholarships for Master's- and Doctoral-level studies and for postdoctoral fellowships.

A total of 1298 Postgraduate Scholarships (PGS) and 200 Postdoctoral Fellowships (PDF) were awarded. In addition, 100 postgraduate scholarship candidates were placed on a reserve list to be awarded scholarships if some of those originally offered were declined. All of the candidates on this list have now been offered scholarships.

The 1998 competition was the first following the significant changes made in 1997 to the structure of the scholarship and fellowship selection committees. The three former committees were split into six more-specialized committees, and the total number of members was increased from 36 to 49. This resulted in a more efficient review process and a reduced workload for committee members.

Employees in the Scholarships and Fellowships Division of the Research Grants and Scholarships Directorate.

Selection Committee	Award Type	Number of Applications	Number of Awards	Success Rate (%)
Engineering	PGS	386	265	68.6
	PDF	100	27	27.0
Computing and Mathematical Sciences	PGS	398	263	66.1
	PDF	99	27	27.3
Physics and Chemistry	PGS	306	195	63.7
	PDF	153	46	30.1
Earth Sciences and Ecology	PGS	315	192	61.0
	PDF	141	33	23.4
Cellular and Molecular Biology	PGS	326	177	54.3
	PDF	151	37	24.5
Life Sciences and Psychology	PGS	358	206	57.5
	PDF	135	30	22.2
TOTAL	**PGS**	**2089**	**1298**	**62.1**
	PDF	**779**	**200**	**25.7**

Tips...

For tips on how to prepare a winning scholarship or fellowship proposal, see our Web version of this issue of Contact.

The table shows the 1998 competition results. The postgraduate scholarship and postdoctoral fellowship awards are distributed among the six selection committees according to a formula that takes into account the number of applications and the history of awards for each committee. **The table does not reflect subsequent decisions regarding investment of the additional funds received in the federal budget.**

One Scholarship Program Looking for More Applicants

The Industrial Postgraduate Scholarships Program, now in its fourth year of existence, has been renewed for another two years, beginning September 1.

Although students find the program very useful, universities and industries have yet to take full advantage of it. During its first two years, 60 awards went unused, and the forecast is that 25 awards will lapse during the current phase. As of May 1, NSERC had awarded only 189 scholarships out of a possible 304.

This program provides highly qualified science and engineering postgraduate students with training in an industrial setting. It allows them to undertake thesis research in an area of interest to an industrial sponsor. Scholarship funding is provided both by NSERC and the sponsor. For two years, NSERC contributes a stipend of $13,800 per year, while the industrial sponsor makes a minimum cash contribution of $5,000 ($5,500 as of September 1, 1998) per year. Over 80% of the applicants who are nominated for an award are successful in obtaining one.

Two types of award are available:

- Students who have not started graduate studies or are in their first year of graduate studies may be nominated for a scholarship that will provide 24 months of support towards a doctoral or a master's degree during the first three years of postgraduate study; and
- Students near the end of their second or in their third year of graduate studies may be nominated for a scholarship that will provide 24 months of support towards a doctoral degree during the third, fourth and fifth years of postgraduate study.

Nominations for the 115 awards remaining in the current quota are being accepted until August 31, 1998, on a first-come, first-served basis. Any awards not used by then will lapse. Beginning September 1, there will be 304 new scholarships available, to be taken up by August 31, 2000. NSERC has advised participating universities of their allocation of new awards. In addition, NSERC has retained a number of awards in reserve, which will be made available on a first-come, first-served basis to universities that have used up their quota, or that have not been assigned a quota.

Universities that did not participate in the current phase of the program, but would like to participate either in the current phase or the new one should contact NSERC.

For further information, please visit our Web site at www.nserc.ca/programs/ipsen.htm or contact Dave Bowen by telephone: (613) 992-7816 or e-mail: djb@nserc.ca.

New Research Award for Postdocs

Canadians interested in doing their postdoctoral research in the United Kingdom will soon be able to apply for a Canada-United Kingdom Millennium Research Award. This new award is the result of an agreement signed on May 14 during the Canada-United Kingdon summit in London. Under the Memorandum of understanding on scientific cooperation signed by NSERC and the Royal Society of London, each organization may issue up to ten postdoctoral awards to be held in the other country.

Further information will be available on our Web site this fall, once the details have been worked out.

Research Update

Chair in Analytical Mass Spectrometry Inaugurated at York University

The establishment of a $2.37 million industrial research chair in analytical mass spectrometry partnered by MDS Sciex, York University, and NSERC was announced on April 15 by Elinor Caplan (M.P., Thornhill), on behalf of Industry Minister John Manley. Mr. Bill Garriock, President of MDS Sciex, Dr. Lorna Marsden, President of York University, and Dr. Brzustowski attended the event.

Dr. Brzustowski said that chairholder Dr. Michael Siu's research in electrospray ionization would deepen the fundamental understanding of ion behaviour. This new knowledge can be applied to develop new or better mass spectrometers. He also said that students working with Dr. Siu would benefit from his research experience and collaborations with a successful Canadian company in a very competitive field.

Analytical mass spectrometry is a technique widely used to identify substances in samples – for instance, to detect pesticides in lake water or banned substances in an athlete's blood.

Chair in Snow and Avalanche Science Announced at UBC

Member of NSERC Council John Grace represented President Tom Brzustowski at the March 17 announcement of the NSERC/Forest Renewal BC/Canadian Mountain Holidays Industrial Research Chair in Snow and Avalanche Science. UBC Dean of Arts Shirley Neuman announced the appointment of Professor David McClung as Chairholder.

Dr. McClung's research will centre on avalanche forecasting, control methods and risk assessment. This Chair (which will receive almost $900,000 in total funds) will also form the basis of a research group that will solve critical problems facing industries affected by avalanches and train geoscientists and engineers in avalanche science.

Eighty per cent of Canada's avalanches occur in British Columbia; they account for more fatalities than any other natural hazard in the province. The increased knowledge of avalanches gained as a result of this chair will be particularly useful for, among others, heli-skiing companies, which must deal with changing snow conditions over vast areas, and fixed-lift ski areas, which must manage avalanche hazards: Whistler/Blackcomb, for example, has more than 500 avalanche paths in and around its ski areas. Such research is also essential for the forest industry, since avalanches can start in clearcuts or descend into them, and can destroy valuable timber, remove soil cover and prevent forest regeneration.

Staff in the Research Partnerships Directorate.

Students Wanted

It's important for today's students to develop hands-on industrial work experience. NSERC's Undergraduate Student Research Awards in Industry provide a great opportunity for co-op and summer students to do just that. They get the chance to gain research experience in an area relevant to their studies (which definitely beats flipping burgers!) while at the same time earning the money they need to continue their studies the following year. And they get to know a company and enhance their future career prospects — sponsoring companies often use the program to identify potential employees. In many cases, this industrial experience will whet the students' appetite for research and encourage them to continue on to graduate studies.

Applying is easy. Students can visit NSERC's Web site for a description of the program (http://www.nserc.ca/programs/usrainen.htm), then obtain a copy of the application material (including lists of eligible companies) from their department head.

How to Prepare a Winning Research Grant Proposal

No amount of care and effort in preparing a research grant proposal will compensate for a weak research program. However, a poorly prepared proposal can prevent a strong research program from being supported at the level it deserves. The following items are important in preparing a research grant application to NSERC.

The research proposal

Any proposal should place the proposed research in context, articulate the goals that will be pursued, summarize relevant prior work in the field, describe a research plan and methodology, and give some indication of why the research is important. If you are applying for the renewal of an award, a progress report on the research you performed during the last funding period is also required. It is important to remember that the intent of NSERC Research Grants is to fund a research program (with long-term goals) rather than short-term projects.

A major portion of the proposal should be devoted to a careful description of the research objectives and of the methodology that will be used. For the research plan, you should at least know how you are going to start out and have some ideas for future options.

You need to convince the selection committee that:

- your research program promises a notable advancement or innovation in the field or results of importance to a broad range of applications;
- you have identified well-formulated short- and long-term goals;
- attaining these goals would be a significant contribution to the field;
- you have a good chance of attaining the goals with the resources available.

Applications are judged according to the following criteria. The onus is on the applicants to address these explicitly in their proposal:

- Scientific or Engineering Excellence of the Researcher(s);
- Merit of the Proposal;
- Contribution to the Training of Highly Qualified Personnel;
- Need for Funds.

Describing your ideas

Your proposal will be evaluated by experienced researchers. It is up to you to provide the information necessary for a positive decision.

If there are potential problems, say so. It is only reasonable to assume that you have thought through your proposal more thoroughly than the reviewers have; consequently, if they see problems that you do not seem to have noticed then they may view your proposal negatively.

One of the complexities of writing a research proposal is that you have to address two audiences: 1) the internal and external reviewers, who are likely to be knowledgeable in your field of interest, and 2) the remainder of the committee, who are in your discipline but may have limited knowledge of the area in which you are working. Your proposal must have something for both audiences; there should be enough depth and detail to satisfy the expert, but you must also convince the non-expert of the importance and impact of your proposed research.

The Personal Data Form (Form 100)

The personal data form is your chance to give information about yourself and about your qualifications. The best indicator of your potential to contribute to the field in the next granting period is your recent record of achievement. Of course, for researchers applying for the first time, the emphasis will be put mainly on the potential for contributions based on the merit of the proposed research.

There is a lot of information that you can include in the personal data form. What you decide to include reflects your priorities and how you view your contributions; it will be used by reviewers to form a picture of you and your work.

The personal data form gives you the opportunity to describe the quality of your contributions under various categories:

- List of any other research support currently held or applied for, as well as support during the past four years. Clearly delineate any potential funding overlap between the proposed research and the research that is being funded from other sources.
- List of your five most significant contributions in the last six years.
- List of other research contributions (refereed or not).
- Explanation of research contributions (e.g. contribution to collaborative work and to the transfer of technology).
- Contribution to the training of highly qualified personnel. This includes research training of graduate students and postdoctoral fellows, as well as undergraduate students and technical/professional assistants. NSERC recognizes that not all research is appropriate for training and there will be circumstances where training will not be possible. In these cases, the onus is on the applicant to provide an explanation for the absence of a training component.
- Other evidence of impact (list of awards and honours related to your work, membership on committees etc.).
- Delays in the research and in the dissemination of research results.

Checklist for applicants before applying to NSERC:

Make sure you use the 1997 versions of the *NSERC Researcher's Guide* and Application Kit. Read and follow all the instructions carefully. Consult the *"Notice 1998"* available on NSERC's Web site at http://www.nserc.ca/news/adapp.htm or at the Research Grants Office of your university.

Follow the print size and margins standards. Read and follow the instructions on print size and margins. Do not try to buck the system by using a tiny typeface or by not respecting margin requirements. We receive numerous comments from GSC members suggesting that applications that do not respect our presentation requirements be rejected. As you know, the peer evaluation of applications is carried out by GSC members who are volunteers and who must read many applications: their already demanding task is made more difficult when the format of applications is inadequate.

Follow the page limitations. Proposals are restricted to a certain number of pages. You do not have to use them all, but a clear exposition of complex ideas takes a certain amount of writing and most successful proposals occupy the majority of the allotted space. Make sure that the proposal is well laid out and easy to read, with clear headings. Don't overfill the space! Do not send in more than the maximum number of pages for Forms 100 and 101.

Applications that do not meet these standards may be rejected.

Make sure the application is complete, and that you have included all the applicable appendices.

It could be four years before you can apply for a grant again. **Make the most of this year's opportunity and avoid the less than favourable funding decision that a poorly prepared proposal might receive.**

Tips on How to Prepare a Winning Scholarship or Fellowship Proposal

A well-written application will improve your chances of obtaining an NSERC scholarship or fellowship. The competition for these awards is fierce because of the limited funds available, and the majority of applications submitted to this national competition are from excellent candidates.

Now for the Tips ...

First, it is important to remember the context in which the applications are reviewed. Your application will be reviewed by one of six selection committees composed of university faculty members and postdoctoral fellows from across Canada. All applications are read by two selection committee members prior to the February competition week. The committees meet in Ottawa to review hundreds of applications. Given the large number of applications and the limited time available, it is essential that you provide the information in your application in a clear, concise manner.

Follow the requirements

Before your start to complete the application form, read all the relevant instructions in the 1998 versions of both Form 200 and the *NSERC Scholarships and Fellowships Guide*. A web-based version of the application form will be available this fall. If you use the paper version, be sure you respect the print size, margin guidelines and page limitations for the free-form sections; the application forms are photocopied and have to be legible. Proofread your application carefully – typos, and spelling and grammatical errors do not leave a favourable impression. Take the time to make a good impression – you only have one chance to do it.

Check that the field of research is eligible

Some research areas overlap the funding mandates of the three granting councils. If you are not sure whether your proposed research is eligible, consult with your university scholarship liaison officer or staff in one of the granting councils well before any application deadlines. It is important that you submit your application to the appropriate council.

Give a clear, detailed description of your research proposal

Clearly describe your proposed research. Write in plain language; remember that the selection committee members may not have specialized knowledge of your particular area of research. Provide a detailed description of your proposed research activities. State the objectives and outline the experimental or theoretical approach you intend to take, and the methods and procedures you will use. Explain the significance of the proposed research activities to the field. Ask someone whose opinion you respect, but who is not overly familiar with your work, to read your proposal.

If you are applying for a PGS A (scholarship for the first and second or second and third years of graduate study), but have not yet begun a program of graduate studies, you should describe specific research problems that interest you. Show the selection committee that you have taken the initiative to think about and investigate the field of research that you would like to pursue.

Provide the information requested if you want to hold the award abroad

Each year 100 postgraduate scholarships are awarded to students wishing to study abroad. If you intend to apply for one of these awards, you must explain why you have chosen the particular research topic and university. In addition, you must provide a letter from a Canadian authority in the proposed field of research, explaining whether the proposed research program could be carried out in a Canadian university and discussing any benefits you would derive from holding the scholarship abroad. If you do not provide this documentation, your application will not be considered for tenure abroad.

Make sure your application is complete

Remember, it's up to you to ensure that your application is complete when submitted. Make sure you know the departmental, university and NSERC deadline dates. Follow up with those you asked to complete Appendices 1 and 2 to ensure that they have done their part and that your application is received at NSERC by the deadline date.

Good luck in the 1999 competition